

Applicants traverse the rejections of claims 1, 5, 9 and 10-13 as obvious over Kleinberger et al. U.S. Patent No. 5,350,117 (Kleinberger) in view of Denvir et al. U.S. Patent No. 6,120,822 (Denvir).

Independent claim 1 specifies an improvement in a humidification system including an atomizing nozzle, a water supply and a control selectively supplying pressurized water from the supply to the atomizing nozzle so that atomized vapor is provided. The improvement comprises an ozone generator and an air compressor operatively connected between the ozone generator and the atomizing nozzle for delivering pressurized ozone to the atomizing nozzle so that the nozzle develops ozonated vapor.

Neither of the references, alone or in any proper combination, discloses or suggests using an atomizing nozzle delivering ozonated vapor in a humidification system.

Kleinberger discloses a humidification system using a misting nozzle 40. Contrary to the statements in the action, the nozzle is not an air atomizing nozzle. The specification simply refers to the nozzle as a mist assembly which is connected to a water supply tube and a drain tube. There is no pressurized air used so that the assembly could not be an air atomizing nozzle.

Denvir discloses an apparatus for treating food with ozone. There is no basis for combining the systems of Kleinberger and Denvir. At most, the systems could be used side by side so that one provides water mist and the other ozone. However, there is no disclosure or suggestion of combining the two to produce ozonated vapor using an atomizing nozzle.

The rejection fails in its incorrect reading of Kleinberger as disclosing an air atomizing nozzle and then suggesting that the ozone generator of Denvir could be somehow connected to the air atomizing nozzle. However, since Kleinberger does not disclose or suggest an air atomizing nozzle, let alone the use of pressurized air in any fashion in connection with the misting, the combination is not supportable.

Claim 1 is not obvious over Kleinberger in view of Denvir.

Independent claim 5 specifies a humidification system for a product holding space, comprising an air atomizing nozzle positioned proximate the product holding space and including a water inlet and an air inlet. A water supply and a control selectively supply pressurized water from the supply to the atomizing nozzle water inlet. An air compressor is operatively connected between an ozone generator and the atomizing nozzle air inlet for delivering pressurized ozone to the atomizing nozzle so that the nozzle delivers ozonated vapor into the product holding space.

Claim 5 is not obvious for the same reasons discussed above relative to claim 1. More particularly, the nozzle of Kleinberger does not disclose an air inlet. The action references element 124a which is an air inlet to a body panel. This is not an air inlet to an atomizing nozzle. Claim 5 is not obvious. Claim 10 depends from claim 5 and is likewise not obvious.

Independent claim 11 specifies a humidification system for a refrigerated display case comprising a plurality of air atomizing nozzles positioned proximate the display case and each including a water inlet and an air inlet. A water supply and a control selectively supply pressurized water from the supply to the atomizing nozzle water inlets. An air compressor is

operatively connected between an ozone generator and atomizing nozzle air inlets for delivering pressurized ozone to the atomizing nozzle so that the nozzles deliver ozonated vapor into the display case.

Independent claim 11 is believed allowable for the same reasons discussed above relative to claims 1 and 5. Dependent claims 12 and 13 are likewise believed allowable and withdrawal of the rejection is requested.

Applicants traverse the rejection of claims 2-4 and 6-8 as obvious over Kleinberger in view of Denvir and further in view of Karlson U.S. Patent No. 4,517,159 (Karlson).

Claims 2-4 depend from claim 1. Claims 6-8 depend from claim 5. The deficiencies with respect to Kleinberger and Denvir are noted above. Karlson does not disclose or suggest these deficiencies. Instead, Karlson is cited for use of an air inlet filter, air dryer and muffler. Even if the combination were proper, the combination would not result in the claimed invention. Therefore, the rejection is improper and ought be withdrawn.

Applicants traverse the rejection of claims 1, 5, 9 and 11-12 as obvious over Dettling et al. (Dettling) U.S. Patent No. 6,406,006 in view of Denvir.

No combination of Dettling and Denvir produces a system using an atomizing nozzle receiving pressurized ozone and pressurized water to develop ozonated vapor.

Dettling discloses a basic humidification system for a display case or the like. This system uses atomizing nozzles. The system in Dettling is generally consistent with that

discussed under the heading “Background of the Invention” of the instant application. Such a system is used for providing hydration.

Denvir discloses a pump and ozone generator used to sterilize food products in a holding case with ozone. The ozone is apparently introduced using blowers or fans. Denvir does not mention the use of an air compressor as the method of drying the ozone into the air stream. The action is incorrect in characterizing the pump as an air compressor. Considering the overall structure used in Denvir, such as the delivery system 50, the use of a compressor would serve no purpose.

Because Denvir does not disclose or suggest compressing ozone, it would not be a substitute for the air supply of Dettling.

In fact, it is not obvious to compress ozone as it has been thought that ozone would attack the internal parts of a compressor and quickly damage the parts due to the corrosiveness of ozone.

Moreover, Denvir teaches against the combination and is essentially contrary to the proposed combination. The Examiner’s attention is directed to Denvir at col. 3, lines 48-58 which indicate that ozone decomposition is accelerated by water and at higher pressures. The purpose of a compressor is to substantially increase pressure of the material, ozone in the case of the claims. Thus, Denvir teaches against using a compressor with ozone as it would accelerate ozone decomposition.

In accordance with the claimed invention, the air is moved quickly to the air atomizing nozzle due to the compressor so that there exists a high enough concentration to provide sufficient residual of ozone dispersed into the treated space. Also, the ozone is contained within the air side of the atomizing nozzle and is not subject to the destructive effect of ozonated water impacted by pressure through a nozzle. Hydraulic pressure atomization and air atomizing are separate and distinct methods of atomizing fluids.

Thus, no proper combination of the references results in the claimed invention so that claim 1, and similarly independent claims 5 and 11, and dependent claims 9 and 12 are not obvious and the rejection ought be withdrawn.

Applicants traverse the rejection of claims 2-4 and 6-8 as obvious over Dettling in view of Denvir and further in view of Karlson.

Claims 2-4 and 6-8 depend from claims 1 and 5, respectively, discussed above. Karlson does not disclose or suggest the deficiencies noted with respect to Dettling and Denvir. Therefore, the rejection is improper and ought be withdrawn.

Applicants traverse the rejection of claims 10 and 13 as obvious over Dettling and Denvir and Kleinberger.

Claims 10 and 13 depend from claims 5 and 11. The deficiencies with respect to Dettling and Denvir are noted above. Kleinberger does not disclose or suggest these deficiencies, as also noted above.

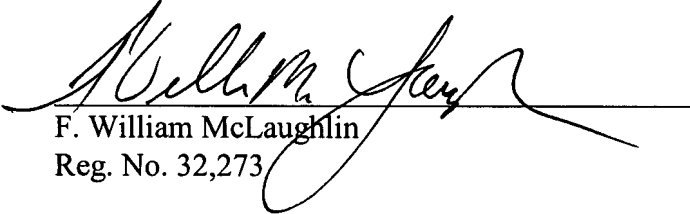
The rejection is improper and ought be withdrawn.

Summarizing, none of the references, alone or in any proper combination, disclose or suggest use of an air atomizing nozzle receiving pressurized water and pressurized ozone to deliver ozonated vapor.

Reconsideration of the application and allowance and passage to issue are requested.

Respectfully submitted,

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